The psychological responses of amateur riders to their horses' injuries

Abstract

Rationale: Equestrian sport is considered a high-risk environment for equine injury. Due to the close bond between horse and rider, it could be theorised that riders may be impacted psychologically by their horses' injuries, as seen in athletic pairs and with companion animal ownership. The extensive time commitment and responsibility of care within equestrian sport means that horse riders' day-to-day life is impacted in a way not seen in other sporting or leisure environments, thus providing a unique opportunity to investigate the psychological responses of riders to their horse's injury. *Objective:* The aims of this study were to investigate the psychological responses that amateur riders experienced when their horses were injured. *Methods:* 308 amateur horse riders (16 male and 292 female, median age 25-30 category) completed the Psychological Response to Sport Injury Inventory (19-item) (PRSII) and questions regarding demographics, investment in equestrian sport, the horse's injury and the length of rehabilitation. *Results:* Devastation was significantly affected by the weekly time investment of riders (H (3) = 8.255, p= .041) and the length of ownership prior to the injury (H (2) = 7.690, p= .021). Devastation, Feeling Cheated, Restlessness and Isolation were all significantly affected by the length of rehabilitation for the horse (H (7) = 70.825, p= .000, H (7) = 37.799, p= .000, H (7) = 37.799, p= .004, and H (7) = 27.486, p= .000 respectively). *Conclusions:* These findings suggest that amateur horse riders are at risk of psychological distress when their horse becomes injured. Whilst the industry has developed strategies to support owners following euthanasia which are already in place, psychological support following horse injury may be necessary to buffer psychological Devastation within amateur horse owners.

Key words: horse-owner, injury, Devastation, Isolation, rehabilitation,

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Introduction

Equestrianism involves training, dedication and commitment to succeed as a competitive sporting event, and significant time investment, energy and emotion to produce a successful working partnership between horse and rider (Dashper, 2017; Wolframm and Meulenbroek, 2012). The extensive time commitment and responsibility of care seen in equestrianism mean that riders' day-to-day life is impacted in a way not seen in other sporting or leisure environments (Dashper, 2017). Unlike other sport or leisure activities, this unique nature of equestrian sports makes participation a 'way of life' rather than 'a part of life' (Dashper, 2017). Horse riders have been reported to experience significant emotional attachments to their horses, similar to that experienced by pet owners for companion animals such as dogs or cats (Field et al. 2010; Mills and McNicholas, 2005; Wipper, 2000). Due to the caring aspect of the relationship, people feel a responsibility and sense of purpose from owning pets which promotes a sense of security, self-worth and joy (Morley and Fook, 2005). When a companion animal dies, owners experience an array of emotional responses, including grief, guilt, anger, helplessness and a sense of failure (Chur-Hansen, 2010). Riders have also been reported to experience grief at the loss of a horse (Brackenridge and Shoemaker, 1996; Endenburg et al. 1999) although this partnership has been explored less in research.

Equine injury is common within general purpose (GP) or low-level competition horses (Murray et al. 2006; Owen et al. 2012). In a review of 652 owners of GP horses, over 40% of horse owners surveyed reported injuries in the last year. Of those horses injured, recovery spanned <1 week to 12 months, with 37% of horses requiring box rest for between 1 day – 50 weeks (median 14 days) and 6% requiring hospitalisation. Murray et al (2010) also reported 33% of dressage horses (80% non-elite, 20% elite) had experienced lameness in their lifetimes and Mellor et al (2001) identified that horses were likely to experience 0.88 vet visits per annum for non-routine treatments, such as lameness assessment. This suggests that low-level or GP horses are at risk of injury as much as elite level performance horses (Murray et al. 2010).

Athletes are known to experience complex psychological responses to injury, including changes in cognitive appraisal, emotional responses and behavioural changes post-injury (Wiese-Bjornstal et al. 1998). Cognitive appraisal and subsequent emotional and behavioural responses of athletes have been extensively researched in a range of sports, and studies have utilised the Psychological Response to Injury Inventory (PRSII) to measure the emotional and behavioural responses of athletes to injury (Evans et al. 2008; Mitchell et al. 2014; Rees et al. 2010). The appraisal process suggests that injury triggers a cognitive re-evaluation, where athletes assess their coping resources, the injury severity, prognosis for recovery, the re-adjustment of goals and subsequent sense of relief or loss, dependent on whether goals are met (Wiese-Bjornstal et al. 1998). Cognitive appraisal influences the emotional responses of the athlete: a positive appraisal of coping ability may lead to a positive emotional response in the athlete, whereas a sense of loss resulting from injury may lead to emotions such as grief, fear, frustration or anger (Thatcher et al. 2007; Tracey, 2003; Walker et al. 2007). Initial grief responses, similar to those reported in Kubler Ross's Grief Theory (1969), mimic loss, shock and emptiness, classified as Devastation in sporting literature (Rees et al. 2010). The loss of sport participation, or unfavourable progression with rehabilitation, leads athletes to experience restless behaviour, frustration or anxiety about their return to sport, and a sense of feeling cheated has been reported in many athletes, particularly when injury has resulted in the adjustment of goals set (Mitchell et al. 2014). In paired sports, research into the psychological consequences of another person's injury on a teammate has been undertaken (Day et al. 2013; Kerr, 2007; O'Neil, 2008). Defined as vicarious trauma, it can have a profound impact on those

experiencing it with athletes reporting emotional reactions such as horror, fear, helplessness and depression as a result of observing their team-mate being injured (Day et al. 2013; O'Neil, 2008). This was seen by Davies et al (2017), who interviewed five elite young riders on their experiences when their horse became injured during a competitive season and identified a sense of loss, denial and guilt as strong emotional responses to their horses' injuries suggesting riders could experience vicarious trauma in response to their horses' injuries.

Following emotional responses, athletes will likely experience behavioural changes in response to the injury (Wiese-Bjornstal et al. 1998) which can positively or negatively impact rehabilitation success depending on an athlete's cognitive appraisal. Athletes who refocus goals to make effective use of their rehabilitation, working on additional constructs like strength, endurance or confidence, are more mentally prepared to return to sport. This is measured through the PRSII as Reorganisation (Evans et al. 2008). Behavioural responses can also include adherence to rehabilitation activities, use of psychological skills strategies, use or disengagement from social support structures, risk-taking behaviours and behavioural coping techniques (Wiese-Bjornstal et al. 1998). These responses will influence the athlete's ability to return to play successfully, and the quality and efficacy of their rehabilitation (Santi and Pietrantoni, 2013) whilst research into pet ownership has reported sleep disturbances, obsessive thoughts over the events leading to the death of a pet, or reluctance to discuss the event due to fear of condescension and societal tendencies to trivialise grief (Morley and Fook, 2005; Quackenbush, 1985; Stewart et al. 1985). In both populations, disengagement from a community after injury can lead to increased feelings of isolation, which is negatively associated with adherence to rehabilitation in the athlete population (Harris, 2003; Rees et al. 2010). Elite young riders reported that whilst they experienced societal judgement about the injury or death of a horse, the equine community were more understanding of the significance of this loss (Davies et al, 2017), which may create a unique protective environment for risk of isolation in riders with injured horses.

The aims of this study were to investigate the psychological responses that amateur riders experience when their horses are injured. It was expected that as time investment in the horse increased, weekly and through the length of ownership prior to an injury, there would be increasingly negative psychological responses from riders and decreased coping strategies utilised to support recover. It is also expected that as rehabilitation length increases, riders will experience increased negative psychological responses and decreased coping.

Methodology

Participants

A total of 333 participants volunteered for this study, recruited from advertisements placed on social media, such as Twitter or Facebook, and equestrian forums such as Horse and Hound. To be eligible to participate in the study, respondents were required to be horse riders, over the age of 18 years, who had owned/loaned a horse that had undergone an injury, and classified themselves as amateur riders. Ethical consideration was granted by the institutional ethics committee prior to data collection.

Measures

The Psychological Response to Sport Injury Inventory (PRSII) was used to measure riders' post-equine injury emotional and behavioural responses (Evans et al. 2008). The scale consists of five subscales: Devastation, Feeling Cheated, Restlessness and Isolation with four items each and Reorganisation that consists of three items. Devastation reflects feelings of shock and emptiness, which have been reported to characterise athletes' responses to injury (Brewer et al.

1994; Rees et al. 2010). Reorganisation suggests constructs such as confidence (Evans et al. 2008) whilst Feeling Cheated displays bitterness and attempts to rationalise, and stems from time lost from sport participation (Mitchell et al. 2014). Restlessness also occurs from time lost from sport participation, and can reflect the feelings of anxiety and frustration because of an inability to participate (Mitchell et al. 2014). Finally, Isolation is widely reported in an injury context, and can have detrimental impact on rehabilitation through lack of social support during recovery (Wadey et al. 2012). The tool consists of 19 self-declarative statements that allow responses on a 5-point, strongly agree (1) to strongly disagree (5) scale (Evans et al. 2008). Mitchell et al (2014) report internal consistency values ranging between $\alpha = .65$ - .80 for PRSII subscales, with some subscales below Nunally's (1978) standard of $\alpha = .70$. Participants were also asked questions relating to their participation in equestrian sport including their years of riding experience and time investment per week, and their horse's injury, such as length of rest prescribed for rehabilitation and type of injury.

Procedure

The PRSII (Evans et al. 2008), participation and equine injury questions were transferred to an online survey produced by www.qwiksurveys.com and distributed through social media and equestrian forums. The use of online surveys allows interactions with a more diverse respondent group whilst obtaining a large sample at the convenience of the researcher and participant (Evans and Mathur, 2005). Online recruitment required consent prior to starting the questionnaire. Following consent, participants answered 32 questions, taking approximately 10 minutes to complete, dependent on computer literacy. The sample was opportunistic and therefore not representative of the wider equestrian population, however potential respondent bias was minimised by utilising a wide range of online sites to recruit participants (Evans and Mathur, 2005).

Data Analysis

Questionnaire responses were analysed to produce PRSII subscale scores. Each subscale was calculated by adding the 1-5 scores from categorised questions to create a subscale score measured out of 20 (with Reorganisation score out of 15) (Evans et al. 2008). A total of 333 questionnaires were submitted, however 25 questionnaires were incomplete and therefore 308 were analysed. Spearman's Correlation Coefficient test ($P<0.05$) was used to examine the relationship between each of the subscales of the PRSII to confirm the validity of the PRSII to assess psychological response to injury. Following assumption testing, the differences in PRSII subscales between the rider's time investment (days per week, and ownership prior to injury) and rehabilitation length, were analysed using Kruskall-Wallis tests ($P<0.05$) with subsequent pairwise comparisons, with adjusted *P* values.

Results

Descriptive statistics

The questionnaire was fully completed by 308 participants (16 male and 292 female, median age 25-30 category). 67.9% of riders in this study reported over 15 years riding experience, with the remaining participants having ridden for 7 – 14 years (25.6%), 4 – 6 years (4.2%) and 1 – 3 years (2.3%). All riders in this study had at least one year's riding experience and the majority of riders visited the yard daily (n = 263, 85.4%). All riders owned (95.5%) or loaned (0.5%) the horse when it became injured and the injuries are outlined in Table 1.

Table 1: Descriptive statistics for reported equine injuries from the sample of 308 owners, including N and total %

Reported Equine Injuries	N	% Total
Tendon/Ligament	134	43.5%
Back/Neck	45	14.6%
Muscular Injuries	8	2.5%
Colic	17	5.4%
Head Trauma	8	2.5%
Body Trauma	24	7.7%
Foot or Abscess	66	21.3%
Extreme behavioural problems	8	2.5%

Equine rehabilitation time ranged from less than one week to resultant euthanasia of the animal, with 19.2% requiring less than 1 month, 37.3% requiring 1 – 6 months, 27.6% requiring greater than 6 months and 15.9% retiring from career (n= 23) or being euthanized (n= 26). All mean and standard deviation values for the PRSII subscales are reported in Table 2. Only results found to be statistically significant ($P \leq 0.05$) are included within the results.

Table 2: Means and standard deviations of the five PRSII subscales scored from 4 – 20 (4 – 15 for Reorganisation), with a higher score indicating a greater psychological response

PRSII Subscale	Mean	Standard Deviation	Range
Devastation	11.31	4.78	4 - 20
Reorganisation	6.76	3.11	3 - 15
Feeling Cheated	9.08	4.07	4 - 20
Restlessness	10.80	4.64	4 - 20
Isolation	7.69	4.19	4 - 20

Validity of using PRSII for this sample

Subscales of Devastation, Reorganisation, Restlessness and Isolation of the PRSII in this study all had high internal reliabilities, (α = .73 - .83). The subscale of Feeling Cheated had lower internal reliabilities, (α = .67).Four of the five subscales (Devastation, Feeling Cheated, Restlessness and Isolation) showed strong positive correlations between subscales in this population (r_s = .564 - .706, p< .001). Reorganisation showed a weak negative correlation to Restlessness (r_s = -.133, p< .05) but no significant correlations were identified with other subscales. As Reorganisation is a positive construct, whilst the other four subscales are negative constructs, no relationship was expected.

Time Investment

Weekly time investment (days)

Devastation was significantly affected by weekly time investment of the rider (days), H (3) = 8.255, p = .041. Devastation was reduced for riders who attended the yard 1-3 days per week (7.92 ± 4.89) compared to those who were there every day (11.51 ± 4.74) (p = .029, r = -.170). All other pairwise comparisons were non-significant, p>0.05.

How long owned horse for before injury

Devastation was significantly affected by how long the participant had owned the horse, H (2) = 7.690, p = .021. Devastation was higher for riders who had owned the horse 3 – 4 years (12.55 ± 4.48) compared to those who had owned the horse 1 – 2 years (10.93 ± 4.63) (p = .041, r = -.165) or longer than 5 years prior to the injury (10.82 ± 5.14) (p = .040, r = .194). All other pairwise comparisons were non-significant, p>0.05.

Rehabilitation Length

Devastation was significantly affected by the length of the horses rehabilitation, H (7) = 70.825, p = .0001. Due to the number of significant pairwise comparisons, all pairwise comparisons and means ± standard deviations for each category of rehabilitation length are reported in Table S3. Devastation appears to increase as their horses rehabilitation gets longer, up to a rehabilitation length of 1 – 2 years (12.14 ± 3.73). Peak Devastation was seen for owners whose horses were euthanized (17.27 ± 3.26) or suffered career ending injuries (14.17 ± 4.11).

Feeling Cheated was significantly affected by the length of the horses rehabilitation, H (7) = 37.799, p = .000. The sense of Feeling Cheated increased for riders whose horses were euthanized (13.04 ± 4.48) compared to those whose horse's recovery was less than 1 week (5.86 ± 2.79) (p = .001, r = -.715), 1 – 4 weeks (7.94 ± 3.99) (p = .000, r = -.557), 1 – 6 months (8.85 ± 4.01) (p = .001, r = -.353) or 6 – 12 months (8.59 ± 3.51) (p = .002, r = -.428). Riders also felt more cheated when their horse suffered a career ending injury (11.04 ± 3.86) compared to those with less than 1 week recovery (5.86 ± 2.79) (p = .026, r = -.604) or 1 – 4 weeks recovery post-injury (7.94 ± 3.99) (p = .016, r = -.397). All other pairwise comparisons were non-significant, p>0.05.

Restlessness was significantly affected by the length of the horses rehabilitation, H (7) = 37.799, p = .004. Restlessness increased for riders whose horses were euthanized (13.96 ± 4.42) compared to those whose horse's recovery was 1 – 4 weeks (9.87 ± 4.80) (p = .007, r = -.415) or 1 – 2 years (9.38 ± 3.47) (p = .040, r = -.465). All other pairwise comparisons were non-significant, p>0.05.

Isolation was significantly affected by the length of the horses rehabilitation, H (7) = 27.486, p = .000. Isolation was higher for riders whose horses were euthanized (10.00 ± 4.39) compared to those whose horse's recovery was less than 1 week (4.86 ± 2.27) (p = .019, r = -.590), 1 – 4 weeks (7.19 ± 4.77) (p = .023, r = -.379), or 6 – 12 months (6.81 ± 3.46) (p = .032, r = -.353). Isolation was also higher for riders whose horses suffered a career ending injury (9.57 ± 4.32) compared to those whose recovery was less than 1 week (4.86 ± 2.27) (p = .046, r = -.575). All other pairwise comparisons were non-significant, p>0.05.

Discussion

The aims of this study were to investigate the psychological responses that amateur riders experienced when their horses were injured. Increased time investment in the horse led to higher levels of rider Devastation after injury whilst injuries requiring longer rehabilitation time led to riders experiencing higher levels of Devastation and a sense of Feeling Cheated. Riders became restless and isolated as rehabilitation length progressed towards 12 months. Finally, riders whose horses were required to be euthanized or suffered career ending injuries suffered the most devastation, frustration, restlessness and isolation as a result of their horses' injury.

Riders who spent every day at the yard were more devastated at the onset of their horse's injury than riders who frequented the yard less often. Horse riding has been reported as a 'way of life', and a duty of care to the horse means it is not usual practice for an owner to visit the barn daily (Anderson, 2011; Ojanen, 2012). A significant motivator for equestrian involvement is the development of the human-horse bond (Buchanan and Dann, 2006) and research into other domestic animals suggests that the way the owner 'views' their animal, in respect of the emotional bond and relationship formed, affects their management practices (Hausberger et al. 2008; Lensink et al. 2001). Daily care and management supports the accepted notion that equestrians consider their horses as part of the family (Mills and McNicholas, 2005) suggesting the 'views' of riders towards the horse is that of a partner or friend, requiring significant care. Strength of attachment is considered a predictor of grief when an animal is lost (Field et al. 2009) and the daily commitment of riders towards caring for their horses suggests strong attachments which may explain higher devastation levels for those riders who spent more time at the yard.

In companion animal research, it is suggested that the longer someone owns a pet, the better the bond formed between owner and animal (Morley and Fook, 2005). Stallones (1994) suggests that people who owned their pets longer experienced increased devastation when the animal died, due to forming more established relationships. This study identified that riders who had owned their horse for between 3 – 4 years were the most devastated by the injury, compared to those who had owned the animal less than 2 years, or more than 5 years. Riders who had owned horses for longer than 5 years would perhaps be more likely to expect injury due to the horse being older; significantly more injuries are reported in older horses than younger (Egenvall et al. 2009). Unlike companion animals, horses are also more likely to suffer from injuries associated with exercise, such as tendinopathy or musculoskeletal damage, rather than simply those associated with old age, further increasing the risk of injury. This establishes an assumption of risk for all horse owners, knowing that it is not 'if' the horse gets injured, but 'when' (Dasher, 2013; Frey et al. 2004). This assumption may explain why those riders who owned their horses longer than 5 years were less devastated than owners of 3-4 years, as there was an increased cultural expectation of risk, based on the horses' age and training, which reduced the shock, and thus devastation experienced.

Length of Rehabilitation impacted almost all subscales on the questionnaire. The longer the horses' rehabilitation, the more riders experienced Devastation, Restlessness and Feeling Cheated. Horse riders have been reported to experience high levels of neuroticism (Wolframm et al. 2015) which Canli (2006) suggests exposes them to difficulties in dealing with stressful situations, and heightens emotional reactions to negative events, such as loss of their horse, which may help to explain the heightened emotional responses to injury seen in this study.

Injuries that require lengthy recovery periods may induce high levels of Devastation in riders due to the severity of the injury, and associated pain that riders perceive that horse to be in as a result. This could be described as empathy, a 'vicariously induced emotional reaction … that is similar to the other's emotional state or consistent with the other's situation' (Eisenberg, 1988). Empathy has been shown to increase when viewing others in pain or distress, particularly when they have an emotional attachment with that person (Decety and Cowell, 2014), seen in paired sports where a partner experiences fear, depression and helplessness when their team mate is injured (Day et al. 2013; Kerr, 2007; O'Neil, 2008). In recent literature, the concept has been extended to human-animal bonds with research suggesting that empathy is a factor in recognising pain in animals (Ellingsen et al. 2010; Furnham, et al. 2003). If empathy is experienced by a partner within team sports, and research suggests that increased empathy

leads to further recognition of animal pain, it could be theorised that high levels of devastation in amateur riders is the result of empathy to their horse's situation.

Increased severity of injury, and subsequent rehabilitation time, also has negative implications to the prognosis of the horse's recovery leading to riders feeling uncertain about the future. Uncertainty about return to sport, alongside being emotionally unprepared for the significant changes resulting from injury, could lead to riders feeling anxiety, bitterness and frustration, reported in this study as higher levels of Restlessness and Feeling Cheated (Bailie and Danish, 1992; Bianco et al. 1999). During injury, most amateurs lose the ability to ride, and whilst care of the horse is an important characteristic of equestrian sport, the disengagement in riding activities, possible loss of exercise and changes in structure and routine that influenced the riders pre-injury normality (Dashper, 2017), could increase feelings of Restlessness and Feeling Cheated. The ridden component of riders' engagement within equestrianism is also considered central to the social environment, with riders feeling 'out of the loop' when unable to engage in riding activities with peers (Dashper, 2017). More than just the social activity or physical exercise, riding is liked to feelings of kinaesthesia and 'embodied mindfulness', engaging multiple and complex sensory and motor fields which may lead to feelings of frustration if lost (Dashper, 2017). Alongside the reduction in ridden activity for riders, injured horses pose significant financial burdens to owners, due to high maintenance costs and veterinary bills. This can add further psychological distress to the rider, who may be required to make a decision about whether they can afford to keep the horse.

Riders who 'lost' their horse experienced the highest isolation scores, although in comparison to other sports the values reported only demonstrated moderate feelings of isolation. This suggests that whilst loss of a horse impacts a rider's social behaviour, the equestrian environment may still offer some community to reduce the impact of isolation after injury in amateur horse-riders. Within a sporting context socialising with those who have had similar experiences is healthy for psychological recovery in injured athletes (Hogan et al. 2002) and this is echoed in the equestrian community; 'horsey' friends, coaches and other riders were considered the best support network when horses suffered career-ending injuries (Davies et al. 2017). Dashper (2017) suggests that being 'horsey' is a universally accepted construct, and has shared norms, values and behaviours regardless of professional or amateur status. It could be suggested that the subculture of equestrian sport has its own societal expectations for the loss of a horse that has allowed the industry to create available support networks for all riders affected by euthanasia, decreasing possible risk of isolation after injury in this population. Within the equine industry, various support schemes and initiatives exist to support horse owners affected by the decision or aftermath of euthanasia, but not specifically for equine injury (BHS, 2017). The British Horse Society offer 'Friends at the End', a national network of over 50 Welfare Officers who have received bereavement counselling to support owners affected by euthanasia. Similarly the Blue Cross offer a bereavement services phone line and World Horse Welfare offer support services for those owners making a plan for euthanasia but none of these services support owners whose horses are injured for extended periods or impacted by forced early retirement (BHS, 2017).

There are limitations to consider within the study. The online sample, although a quick way to obtain greater access to a wider population of amateur riders, may have been subject to self-selection bias whereby only a specific type of person fills in the questionnaire or utilises the online forum or social media site (Wright, 2005). This may have skewed the participants to include only those riders who were significantly impacted by the injury or loss of their horse. Furthermore the reliability of self-report measures are affected by an individual's self-

awareness (Hanin, 2000). Lack of awareness from riders about their emotional responses to their horses' injuries may have influenced their ability to answer the questionnaire.

Future research in this area should explore amateur riders' responses to their own injuries obtained within equestrian sport and how this impacts motivation to return to riding. Horse riding is considered a high risk sport, with risk of rider injury 3.5 times more likely to occur compared to motorcycle riding (Ball et al. 2007; Fleming et al. 2001). As with many high risk sporting activities, injury can lead to attrition from the sport or failure to return to the same level of participation. With approximately 0.7 million riders dropping out of the sport between 2012 and 2015 (BETA, 2015), ensuring continued participation in the sport is paramount to its continued survival as a serious leisure and sporting activity.

Conclusion

The study found that amateur riders experience negative psychological responses to the injury of their horses. Increased time investment in the horse led to higher levels of rider Devastation after injury whilst injuries requiring longer rehabilitation time led to riders experiencing higher levels of Devastation and a sense of Feeling Cheated. Riders became restless and isolated as rehabilitation length progressed towards 12 months. Amateur horse riders are at risk of psychological distress when their horse becomes injured, and this is particularly prominent in owners of horses requiring euthanasia. The Equine Industry has already implemented successful bereavement support programmes for horse owners following euthanasia, but as demonstrated by this study, riders experience high levels of Devastation from forced early retirement as well as extended periods of injury and therefore further psychological support may be necessary to address the Devastation within these populations.

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